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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/683,130
Filing Date: November 21, 2001
Appellant(s): TREVINO ET AL.

Kent L. Baker (Reg. No. 52,584)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/07/05 appealing from the Office action mailed 10/13/05.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,687,527	Wu	2-2004
5680560	Gaertner	10-1997
5877758	Seybold	3-1999

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 9 – 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Wu (6,687,527).

In regards to claim 9, Wu discloses a method of prescribing imaging data acquisition of a subject. The primary layout of this method can be seen in Figure 3. Wu discloses step A in the paragraph starting at column 14, line 20 and seen in step 504 of Figure 3 the first user interaction to initiate a scan session. The user selects a template that corresponds to what type of scan shall be performed; this selection determines which parameters are most important (highest priority) and which are less important. As shown in the paragraph starting at column 15, line 42 after receiving the user's selection a plurality of scan parameters is determined. As mentioned previously depending on

what type of scan the user selects a hierarchy prioritizing the plurality of scan parameters is specified. These steps can then be repeated for subsequent scan sessions. Each new template selected will bring with it a new priority for the scan parameters.

In regards to claim 10, Wu discloses in the paragraph starting at column 19, line 6 "fixed parameters" which "typically include the field of view, the phase of FOV, slice thickness, number of slices, the read matrix, the flip angle, and the signal averages" are determined. These are primary scan parameters that cannot be affected by changes in any other parameters. Changes in the primary scan parameters can affect secondary, which in turn affects the tertiary. In the paragraph starting at column 9, line 42 Wu discloses that "selectable parameters" are determined. The "selectable parameters" are secondary scan parameters. In the paragraph starting at column 10, line 41 Wu discloses that the "monitor parameters" are determined. The "monitor parameters" are the tertiary scan parameters.

In regards to claim 11, Wu discloses in the paragraph starting at column 15, line 23 that "changing one [secondary scan] parameter value can effectively constrain other [secondary scan] parameter values." In the paragraph starting at column 10, line 41 Wu discloses that changing a secondary scan parameter affects the tertiary scan parameters. The secondary scan parameters however, have no affect on the primary scan parameters.

In regards to claim 12, as disclosed above the tertiary scan parameters are affected by changes in either the primary or secondary scan parameters. The user

cannot directly change the tertiary scan parameters so these parameters cannot affect the primary or secondary scan parameters.

In regards to claim 13, the parameters disclosed above can be used to drive user understanding of the physics of the scan session from geometry to timing. There is however nothing patentable in this claim.

In regards to claim 14, all of these parameters are displayed graphically to the user. For example the paragraph starting at column 14, line 59 discloses a graphical user interface (GUI). A GUI is necessary and therefore inherent for a user to be able to access and use the parameters disclosed above.

In regards to claim 15, Wu discloses in the paragraph starting in column 15, line 1 an "input step" for modifying a parameter through the GUI.

In regards to claim 16, Wu discloses that the consequence of changing a secondary scan parameter is seen in the second display through the tertiary parameters as disclosed in the paragraph starting at column 10, line 41.

In regards to claim 17, in the paragraph starting at column 11, line 53 Wu discloses "the embodiment of the second display area 200 shown in Fig. 2B includes indicators to warn the user when certain parameter values enter particularly undesirable regions." This is a way of notifying a user that modification of a scan parameter causes another scan parameter to be invalid.

In regards to claim 18, the warning disclosed in claim 17 is a form of prompting for the user to enter a different scan parameter input.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 – 8, 19 – 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (6,687,527) in view of Gaertner (5,680,560).

In regards to claim 1, Wu discloses a method of guiding prescription of a medical imagine scan. The primary layout of this method can be seen in Figure 3. Steps 68 and 502 "launch" an image application. As shown in step 504 and further explained in the paragraph starting at column 13, line 58 Wu discloses that "the user can select the desired scan parameter set". This is the step of determining a plurality of scan parameters. In lines 1 – 3 in column 15, Wu discloses receiving a scan parameter input. Then in the same paragraph Wu discloses in lines 3 – 9 the step of comparing the scan parameter input to a reference value. Upon verifying the parameter is within range (step 524) the method returns to step 508 and recalculates the minimum and maximum parameter limits, this is further explained in the paragraph starting at column 15, line 23. In the paragraph starting at column 10, line 41 Wu discloses that monitor parameters are calculated when a scan parameter is inputted. Then in lines 19 – 26 in column 11 Wu discloses that the calculated parameters are then used to alert the user that "a monitor parameter is in an undesirable area". Wu's monitor parameters are scan parameters. The previously recited actions dealing with monitor parameters consists of determining the state of validity of parameters and notifying the user if any parameter is out of a predefined range. Wu however does not disclose alerting the user that the state of validity is out of range for any of the parameters before updating the remaining scan parameters.

Gaertner discloses (col. 7, lines 25 – 32) that the user is alerted that the state of validity is out of range when one parameter is changed. By preventing operations to

continue until the parameter is within range Gaertner is teaching of alerting the user of the problem.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to alert the user before taking action (as taught by Gaertner) in the method disclosed by Wu. Alerting the user before taking action would give the user a chance to take his or her own corrective steps before letting the method make the correction decisions, this could speed up the process of finalizing parameter selection.

In regards to claim 2, Wu discloses the step of optimizing the scan parameters in lines 60 – 63 in column 15. In the paragraph starting at column 16, line 20 Wu discloses that SNR is optimized. The user is then given the option to accept the calculated optimized results as seen in lines 49 – 52 in column 19.This is equivalent to determining and suggesting at least one technique for achieving increased SNR.

In regards to claim 3, Wu discloses in the paragraph starting at column 15, line 1 that the user is alerted or prevented from setting a scan parameter to an invalid state. If the method in no way prevents the user's setting or does not alert the user to a problem, the system is conveying to the user that the input is acceptable.

In regards to claim 4, as discussed in the rejection of claim 1 upon updating a scan parameter the system automatically updates the monitor parameters (paragraph starting at column 10, line 41).

In regards to claim 5, in lines 19 – 26 in column 11 the automatic changes from claim 4 can be seen by the user on a secondary display. This updated display conveys

to the user that the remaining number of scan parameters has been automatically updated.

In regards to claim 6, in the paragraph starting at column 11, line 53 Wu discloses "the embodiment of the second display area 200 shown in Fig. 2B includes indicators to warn the user when certain parameter values enter particularly undesirable regions."

In regards to claim 7, as shown in claim 6 the user is notified of the at least one remaining invalid scan parameter. In the paragraph starting at column 12, line 6 warning labels are used to notify the user of remaining invalid scan parameters.

In regards to claim 8, the warning disclosed in claim 7 is a form of prompting for the user to enter a different scan parameter input.

In regard to claims 19 – 21, the methods disclosed previously by Wu must be implemented in software. The paragraph starting at column 14, line 59 discloses a graphical user interface (GUI). Figure 2A is an example of the GUI the user is presented with that allows for the modification of several scan parameters. In figure 3, step 520 the computer program receives a command to modify a scan parameter. In step 526 the scan parameter is modified. In step 508 at least one effect of modifying the scan parameter on another scan parameter is determined. If a modifiable scan parameter is outside of a newly calculated minimum and maximum (step 508) the system must in some way deal with this. There are only two obvious approaches given Wu's specification, either by following the suggestion in lines 14 – 22 in column 15 where the invalid scan parameter is moved to an extreme limit value and a warning is given to the

user or the new max and min are displayed as shown in figure 2A with the invalid scan parameter sitting outside of this range. Either approach is a way of notifying a user of the effect. Both approaches determine if a change needs to be made to another scan parameter, what that change should be (either by providing a range or setting the another parameter to an extreme limit), and if the value is valid (must be within the min and the max). Wu however does not disclose alerting the user that the state of validity is out of range for any of the parameters before updating the remaining scan parameters.

Gaertner discloses (col. 7, lines 25 – 32) that the user is alerted that the state of validity is out of range when one parameter is changed. By preventing operations to continue until the parameter is within range Gaertner is teaching of alerting the user of the problem.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to alert the user before taking action (as taught by Gaertner) in the method disclosed by Wu. Alerting the user before taking action would give the user a chance to take his or her own corrective steps before letting the method make the correction decisions, this could speed up the process of finalizing parameter selection.

In regards to claim 22, as disclosed in the previous rejection of claim 21 the program disclosed by Wu provides two approaches for dealing with an invalid another scan parameter. One of which is automatically changing the another scan parameter to a valid value.

In regards to claim 23, as disclosed in the previous rejection of claim 20 the program disclosed by Wu provides two approaches to dealing with an invalid another

scan parameter. One of which is to redraw the max and min sliders while leaving the another scan parameter outside of the two sliders. This approach is a way of displaying that the another scan parameter has an invalid value on the GUI.

In regards to claim 24, as disclosed in the previous rejection of claim 20 the program disclosed by Wu provides two approaches to dealing with an invalid another scan parameter. One of which is to redraw the max and min sliders while leaving the another scan parameter outside of the two sliders. This approach is a way of promoting the user to modify the another scan parameter.

Claims 25 – 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu in view of Seybold (5,877,758) and Gaertner.

In regards to claims 25 – 27, in figure 1 Wu discloses a medical imaging system configured to initiate an imaging application and acquire imaging data of a subject and reconstruct a diagnostic image of the subject. Item 10 in figure 1 is a console configured to facilitate prescribing of a medical imaging scan. Item 50 in figure 1 is a computer which can implement the required applications. In the paragraph starting at column 15, line 59 Wu discloses a GUI for modifying scan parameters. In the paragraph starting at column 7, line 20 Wu discloses that the GUI detects user modification of at least one of a plurality of options. In figure 3, step 520 the computer program receives a command to modify a scan parameter. In step 526 the scan parameter is modified. In step 508 at least one effect of modifying the scan parameter on another scan parameter is determined. If a modifiable scan parameter is outside of a newly calculated minimum and maximum (step 508) the system must in some way deal with this. There are only

two obvious approaches given Wu's specification, either by following the suggestion in lines 14 – 22 in column 15 where the invalid scan parameter is moved to an extreme limit value and a warning is given to the user or the new max and min are displayed as shown in figure 2A with the invalid scan parameter sitting outside of this range. Either approach is a way of notifying a user of the effect. Both approaches determine if a change needs to be made to another scan parameter, what that change should be (either by providing a range or setting the another parameter to an extreme limit), and if the value is valid (must be within the min and the max). Wu does not disclose the use of tabs in the GUI. Wu also does not disclose alerting the user that the state of validity is out of range for any of the parameters before updating the remaining scan parameters.

Seybold teaches in the paragraph starting at column 7, line 59 and shown in figure 2A that a plurality of tabs can be used for navigation in a GUI. The tabs can be used in a similar fashion as the buttons disclosed by Wu in Figure 2A, each specifying a specific task. For the GUI to be effective the system must detect the user selection of a tab. Finally for the tabs to be used for navigation, when selected they must bring up windows which contain user controlled options.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to use tabs as a means of navigation in the GUI taught by Wu. Tabs are an easy and fairly self-explanatory way to provide user navigation of options in a GUI. As many medical professionals are not computer literate making a GUI that is easy to understand is a necessity.

Gaertner discloses (col. 7, lines 25 – 32) that the user is alerted that the state of validity is out of range when one parameter is changed. By preventing operations to continue until the parameter is within range Gaertner is teaching of alerting the user of the problem.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to alert the user before taking action (as taught by Gaertner) in the method disclosed by Wu. Alerting the user before taking action would give the user a chance to take his or her own corrective steps before letting the method make the correction decisions, this could speed up the process of finalizing parameter selection.

In regards to claim 28, as disclosed in the previous rejection of claim 26 the system disclosed by Wu provides two approaches to dealing with an invalid another scan parameter. One of which is automatically changing the another scan parameter to a valid value. Unless there is no possible valid value, which Wu does not discloses this approach will never result in a value still being invalid. The other approach is to redraw the max and min sliders while leaving the another scan parameter outside of the two sliders. This approach is a way of displaying that the another scan parameter has an invalid value on the GUI.

In regards to claim 29, as disclosed in the previous rejection of claim 27 the program disclosed by Wu provides two approaches to dealing with an invalid another scan parameter. One of which is to redraw the max and min sliders while leaving the another scan parameter outside of the two sliders. This approach is a way of promoting the user to entire a new value for the another scan parameter.

In regards to claim 30, Seybold discloses in the paragraph starting at column 7, line 59 that "Tabs 124 are positioned vertically along the left hand side of the screen". This can be seen in figure 2A. With the tabs on the left side the content window must be displayed on the right side as seen in figure 2A.

In regards to claim 31, the purpose of all GUIs is to facilitate logical top-bottom and left-right workflow. The written English language is designed top-bottom and left-right, this is the reason why GUIs are also designed in a similar fashion to facilitate ease of use.

(10) Response to Argument

Claim 9:

In regards to applicant's arguments that Wu does not teach "hierarchically prioritizing the plurality of scan parameters for the scan session". Wu teaches (col. 14, lines 20 – 27) that a user selects a sequence of scan parameters. This sequence is part of a larger group of parameters referred to as "selectable parameters" by Wu. These selectable parameters comprise the entire set of parameters that control an MRI machine. The remaining "selectable parameters" that are not chosen by the user still need to be set in order for the MRI machine to function. As Wu states all of the parameters are retrieved. So the user is setting a priority on the parameters, parameters that the user has chosen to directly modify and parameters that user will not directly modify. This ranking (the user is giving parameters a measure of importance if he or she decides to directly modify them) or setting a priority between parameters establishes a hierarchy between the parameters.

Although it appears the applicant feels that the term "hierarchically" should be taken narrowly to mean that each of the selected parameters is given an individual ranking (i.e., one parameter has the highest priority, another the second, etc.), however no where in the claims is this documented and therefore the applicant is entitled to the broadest possible interpretation of the term. The plain meaning definition of hierarchy is an ordering. By breaking the selectable parameters into two groups, one given more importance by the user, the parameters have been hierarchically prioritized.

Claim 12:

In regards to applicant's arguments that "may" is not optional language, in the applicant's own arguments the applicant defines "may" as "to be allowed or permitted to". Both of these phrases are also optional language. They cover two possibilities: 1. That a change to one set of tertiary scan parameters will affect another set of tertiary scan parameters; and 2. That a change to one set of tertiary scan parameters will not affect another set of tertiary scan parameters.

Next, it should be noted that Wu still has the ability to affect a change on one tertiary parameter based on the change to another tertiary parameter. Wu simply is saying that it is preferable that the user not be able to directly change a tertiary parameter, Wu is not saying that it the method is incapable of doing so. Wu teaches (col. 10, lines 48 – 59) that there are "tradeoffs" between monitor parameters (in this case SNR and scan time). In other words the change to one monitor parameter will affect another monitor parameter. So Wu discloses that the change to one tertiary scan parameter (monitor parameter) can affect another tertiary scan parameter. What Wu is

stating (col. 10, lines 40 – 47, col. 10, line 60 – 67) is that because these tertiary parameters aren't easily understood it is better not to let the user directly edit them.

In summary, may is optional language and therefore the claim would be met as long as it has the capability to affect tertiary parameters. As shown Wu teaches that a user preferably can not affect tertiary parameters directly; however, when a tertiary parameter is changed indirectly that change can affect other tertiary parameters.

Claim 1:

To begin with the examiner would like to briefly go over why the two references Wu and Gaertner were combined and how this combination teaches the claimed subject matter. In Wu, when a user changes a parameter that change causes a series of other parameters to be updated. The user is then presented with the update, included with the update is an "undo" button, which allows the user to revert to the previous state of the parameters if something is wrong. As shown in the rejection of claim 1, Wu discloses everything that is claimed except for the concept of alerting a user of a problem with the first parameter before updating the remaining parameters.

Gaertner, which also deals with a Graphical User Interface (GUI) used to control parameters, teaches that a state machine is used to prevent further action until a first parameter is determined to be within a desirable range, and only then will the state machine go forward to determine what changes this parameter causes on other parameters. The user is then alerted to potential problems with these other parameter changes. By not allowing the state machine to move forward until the parameter is in a desired condition Gaertner is alerting the user of the problem. In the interface provided

by Wu this might be presented as not allowing the user to select the other slide bars. Regardless of how the user is presented with this information Gaertner is clearly teaching that the user can not continue until the parameter is within range, and therefore the user must be alerted to the out of range condition in some fashion.

There is clear motivation to perform such an operation. Performing all the necessary updates of other parameters as taught by Wu requires a great deal of processor time. If the parameter that is being edited is clearly out of range there is no reason to move on to updating the other parameters before the users corrects the initial mistake. Thus the combination saves processor time, and the user's time. As the user will not have to wait for all of the parameters to update, click undo, wait again for all the parameters to update, and then proceed.

Turning to the applicant's arguments. In regards to "lack of motivation to combine references". The examiner would first like to point to MPEP 2143.01

> Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teachings, suggestion or motivation to do so found either explicitly or implicitly in the references themselves *or in the knowledge generally available to one of ordinary skill in the art.*

The examiner, being one of ordinary skill in the art, an art that has a very high level of skill, provided a motivation to combine two pieces of art in a similar field of endeavor, mainly GUIs for controlling parameters. That motivation from the final office action is "Alerting the user before taking action would give the user a chance to take his or her

own corrective steps before letting the method make the correction decisions, this could speed up the process of finalizing parameter selection." The examiner has expounded upon this motivation to point out more clearly that the combination will save processor time, which in turns saves user time.

The applicant then argues that "neither reference teaches notifying a user of whether any state of validity is out of a predefined range for the scan parameter input before updating the number of remaining scan parameters." As discussed above Gaertner teaches that the state machines prevents the user from moving on until the parameter is set correctly, this acts as a means of alerting the user of the problem.

Next, the applicant argues that there is a "lack of reasonable expectation for success". This is simply not true. Both references deal with GUIs for controlling parameters. Modifying Wu to alert the user before proceeding would certainly be an easy modification and would in no way affect the rest of the operations of Wu. Therefore the modification will most assuredly succeed and provide the benefits outlined by the examiner previously.

The examiner has already dealt with the applicant's arguments about the lack of references teaching all of the elements of the present claim, in the initial overview of the combination. Gaertner provides the concept of preventing a user from continuing until a parameter is placed within a correct range. The applicant focuses in this portion of the arguments on variables D and T from Gaertner. The particular parameters and there functions are not what the examiner is pointing to in the teaching, but rather the concept of waiting to move on from one parameter until it is set correctly and only then checking

if other parameters need to be updated. By preventing the user from continuing until the parameter is properly set the user is alerted to any possible problems.

To recap, Gaertner was brought in to teach preventing a method from continuing until a parameter is within a proper range; the step of prevention provides a means of alerting the user of a problem. Gaertner then teaches that only after the parameter falls within the desired range does the state machine go on to check the other parameters for updates. Gaertner teaches the feature lacking in Wu and there is clear motivation to combine these two teachings. Therefore the combination was proper and teaches all elements of the claimed invention.

Claim 19:

The arguments for claim 19 are the same as claim 1 and therefore the examiner's responses will not be repeated.

Claim 25:

Although the rejection of claim 25 includes a third reference, Seybold, the applicant does not appear to be arguing the combination of Seybold and Wu, but rather the combination of Wu and Gaertner. These arguments are the same as claim 1 and therefore the examiner's responses will not be repeated.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Respectfully submitted,

Christopher Lavin

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